THE IMPACT OF CONTROVERSIAL ESG ON THE MARKET VALUE AND FINANCIAL CONSTRAINTS OF BRICS COMPANIES

Caio Guelli Fernandes1
Marcelus Silas de Freitas Luna2
Elizeu Maria Junior3
Michele Monteiro Lirio Maria4

ABSTRACT

Objective: Analyze the relationship between the controversial ESG and the market value and the financing restrictions of companies that make up the BRICS.

Method: 403 companies from the capital markets of the BRICS member countries were analyzed from 2017 to 2022, making a total of 2702 total observations. The main analysis of the study was carried out using Panel Data regressions, Pooled model. The main research model tested the relationship between market value and the financial constraints indicator, as dependent variables, and controversial ESG as the main explanatory variable.

Results: There was a negative relationship between the controversial ESG score and the market value of the companies analyzed. From this result, it was possible to infer that negative experiences, events and news in relation to ESG practices tend to generate a reduction in the market value of a company, corroborating previous studies and one of the hypotheses of this study. However, the increase in the controversial ESG score was found to reduce the company's financing constraints, differing from expected.

Contributions: The practical conclusions of this research point to the importance of companies continuing to analyze in depth the potential negative impacts that controversial ESG can generate in the financial sphere, covering the short, medium and long term. Furthermore, corporate and public policy makers have the opportunity to improve the regulatory structures of both companies and governments regarding the integration of ESG into investment activities. This, in turn, not only helps to avoid a reduction in the market value of companies, but also prevents a decrease in the financing options available to them.

Keywords: Controversial ESG, ESG, Financial Constraints, Market Value.

O IMPACTO DO ESG CONTROVERSO NO VALOR DE MERCADO E NAS RESTRIÇÕES FINANCEIRAS DAS EMPRESAS DO BRICS

RESUMO

Objetivo: Analisar a relação entre o ESG controverso e o valor de mercado e as restrições de financiamento de empresas que compõem o BRICS.

Método: Foram analisadas 403 empresas do mercado de capitais dos países componentes do BRICS no período de 2017 a 2022, perfazendo um total de 2702 observações totais. A análise principal do estudo se deu pela utilização de regressões por Dados em Painel, modelo Pooled. O modelo principal da pesquisa testou a relação

1 Universidade Federal do Espírito Santo, Vila Velha, Espírito Santo, Brazil. E-mail: guelliciaio.f@gmail.com Orcid: https://orcid.org/0009-0008-0434-2688
2 Universidade Federal do Espírito Santo, Vila Velha, Espírito Santo, Brazil. E-mail: Marcelusluna09@gmail.com Orcid: https://orcid.org/0009-0001-2167-9951
3 Universidade Federal do Espírito Santo, Serra, Espírito Santo, Brazil. E-mail: elizeu.maria@ufes.br Orcid: https://orcid.org/0000-0002-8728-5980
4 Universidade Federal do Espírito Santo, Serra, Espírito Santo, Brazil. E-mail: michelemlirio@yahoo.com.br Orcid: https://orcid.org/0000-0003-4522-5812
entre valor de mercado e o indicador de restrições financeiras, como variáveis dependentes, e o ESG controverso como principal variável explicativa.

**Resultados:** Verificou-se a relação negativa entre o score de ESG controverso e o valor de mercado das empresas analisadas. A partir deste resultado foi possível inferir que experiências, acontecimentos e notícias negativas em relação às práticas ESG tendem a gerar uma redução no valor de mercado de uma empresa, corroborando estudos anteriores e uma das hipóteses deste estudo. Entretanto, verificou-se que o aumento no score de ESG controverso reduz as restrições de financiamento da companhia, divergindo do esperado.

**Contribuições:** As conclusões práticas desta pesquisa apontam para a importância de as empresas continuarem a analisar de maneira aprofundada os potenciais impactos negativos que o ESG controverso pode gerar no âmbito financeiro, abrangendo o curto, médio e longo prazo. Ademais, os formuladores de políticas corporativas e públicas têm a oportunidade de aprimorar as estruturas regulatórias tanto das empresas quanto do governo no que tange à integração do ESG nas atividades de investimento. Isso, por sua vez, não apenas contribui para evitar a redução do valor de mercado das empresas, mas também evita uma diminuição nas opções de financiamento disponíveis para elas.

**Palavras-chave:** ESG Controverso, ESG, Restrição Financeira, Valor de Mercado.

RGSA adota a Licença de Atribuição CC BY do Creative Commons (https://creativecommons.org/licenses/by/4.0/).

### 1 INTRODUCTION

Investors' interest in companies that adopt *Environmental, Social and Governance* related practices (ESG) is growing due to factors such as the greater availability of resources for long-term business sustainability, the development of strategies to optimize the time and resources used in the production process, and better economic and financial performance. With this, all business strategies that drive companies to this concern are defined in ESG aspects and practices. However, negative actions related to environmental, social and governance issues are defined as controversial ESG, which has as examples a lack of commitment to sustainability, inadequate working conditions and lack of accounting transparency, these factors negatively affect the organization's relationship with its *stakeholders* (Halid *et al.*). In this sense, issues of corporate ethics and governance are becoming part of the businesses of companies. As a result, there is an increase in the concentration of companies in improving and increasing their ESG rankings, because, by having an environmental responsibility, engaged social initiatives and responsible governance, one can say that the organization has solid factors for the success of its business (Melinda & Wardhani, 2020).

In recent years, studies conducted by Cheng *et al.* (2015) and Bauer *et al.* (2021) show that ESG-based and sustainable investments are becoming increasingly attractive, as investors have sought such investments as a way to contribute to the sustainability of future generations, not just to increase their personal wealth. When analyzing the search trends on the *Google* search page, an increased interest in the ESG theme is noted, as illustrated in the graphic in Figure 1. These observations highlight the growing awareness and interest of the community in environmental, social and governance issues.
According to studies by Hartzmark and Sussman (2019) and Amel-Zadeh and Serafeim (2018), there has been an increase in interest for sustainable investments in recent years. This phenomenon is driven by growing global awareness of environmental issues such as climate change, pollution and scarcity of natural resources. This awareness has led to a closer consideration by investors of opportunities that promote sustainable practices.

However, events that negatively affect the objectives of ESG practices, have a detrimental impact on the economic and financial performance of a company, and have been the parameter of long debates by intergovernmental organizations. A company's success is determined by a number of factors, including tangible assets such as goods and equipment, machinery and inventories, and intangible assets such as intellectual property, reputation, brand recognition and customer loyalty. However, when a company is involved in a controversial incident, these elements may suffer a significant loss of value due to reputational damage, operational disruption and additional costs (Aouadi & Marsat, 2018).

The reputational risk is one of the main drivers of the negative impact of controversial incidents on the market value of a company (Gonçalves et al., 2013). Investors may view these impacts as a sign of mismanagement or unethical behavior, which may reduce investor confidence and make them less willing to invest in the company's stock. This can result in a decline in the company's revenue and market value as consumers turn to competitors (Vilares, 2015). In addition, the controversial ESG and its consequences generate mistrust among stakeholders, which may affect the results of companies, and as a result, creditors are more cautious in their assessments, making it difficult to release credit and increasing the chances of certain financial constraints (Dixon-Fowler et al., 2013).

In this scenario, in the face of a precarious political and economic perspective, presented in the unceasing quest for economic growth, a new rationality emerged, advocating the
reconciliation between economic development, environmental preservation and social equality (Paiano, 2006). With this, great nations had to have even more directions for sustainable issues. The BRICS, an acronym corresponding to the emerging economies: Brazil, Russia, India, China and South Africa, is an international cooperation agreement that emerged to complement global governance in favor of the democratization of international relations, the strengthening of multilateralism and the promotion of development (De Almeida, 2009).

According to Carvalho et al. (2015), social policies in developing countries progress slowly and inefficiently. There is still an emerging shift in social paradigms, where it is necessary to realize values that drive economic development in relation to the environment and sustainability, which may make these nations more likely to engage with controversial ESG practices. The use of sustainability becomes a major social challenge in the coming decades. In this sense, the research question of the present study arises: What is the relationship between the controversial ESG and the market value and the funding restrictions of the companies that make up BRICS? To this end, the objective of the study is to analyze the relationship between the ESG at issue and the market value and financing restrictions of companies that make up BRICS in the period from 2017 to 2022. The relevance of this analysis is related to the growth of the ESG theme, which may culminate in future legislation related to sustainability (Macedo et al., 2022).

2 THEORETICAL FRAME

2.1 Environmental, Social and Governance (ESG)

In recent decades society has come to have higher expectations regarding the way that companies behave, considering that they are not only evaluated by their financial performance, but also by their concerns with social and environmental issues (Miranda & Amaral, 2011). With this, ESG practices have gained relevance in the market by being directly linked to sustainable development, nature conservation and the reduction of global inequality as common ethical objectives (Sion & França, 2021). Sustainable development is defined as being capable of meeting current needs without impairing the ability of future generations to meet them. Thus, the emergence of this subject emerged as a response to humanity's growing concern over the environmental and social crisis that has affected the world since the second half of the last century. This concept aims to harmonize the need for economic progress in society with the promotion of social development and respect for the environment. Nowadays, this topic is a recurrent topic in the agendas of discussions of various organizations and in various spheres of society, including debates on the development of cities and regions, which are issues that are part of the daily life of our society (Gonçalves, 2005).

The Environmental, Social and Governance (ESG) is based on strategies that direct companies to concern with environmental, social and governance issues in asset management, so the business responsibility towards these factors makes the corporate environment more conscious and well managed (Irigaray & Stocker, 2022). Recently, compliance with environmental, social and governance factors has led many companies to adopt more sustainable business models (Galletta et al., 2022; Khan, 2022; Katterbauer et al., 2022). According to De and Clayman (2015), the adoption of ESG practices can be beneficial for companies, because besides contributing to the sustainability of the planet, it can also generate positive impacts on financial results, besides generating a good reputation for the company and attracting and retaining more qualified professionals.

In terms of the environment, the conservation and conscious use of natural resources is an increasingly relevant factor. Thus, as the future of humanity depends on the established relationship between nature and the use that human beings make of available natural resources,
it becomes even more necessary for companies to give importance to this issue. (Barbosa & Viana, 2014). According to Paz and Kipper (2016), companies that excel at achieving sustainable practices have higher market value and a higher financial return to shareholders, so using a sustainable methodology brings significant gains to organizations both in asset management and economic benefits.

Regarding the social issue, recently Martins (2023) analyzed that companies that care about the working conditions and quality of life of their employees, and that value diversity and inclusion, besides other social issues, tend to have a good image towards society. Companies’ dedication to these internal and external issues generates a gain in the organization’s social reputation, which can promote talent retention in their workforce. According to the World Economic Forum (2019), companies with strong social concerns are more likely to have more engaged, more committed employees and more able to innovate.

The governance segment is defined by the transparency of organizational results and business ethics, that is, companies that seek to identify improvements in their responsibilities, developing new projects for society (Matias, 2010). In order to ensure ethical, legal and transparent decision-making in organizations, it is necessary to ensure shareholders' rights, have a board that is composed of independent and diverse members, prevent conflict of interest, generate transparency in operations and combat internal corrupt practices such as bribery and fraud (Matos, 2020).

There is a rise in the reputation of companies that regularly monitor issues such as biodiversity conservation or prevention of discrimination to reduce risks and controversial ESG incidents, so the focus on sustainability is understood to be the basis of business legitimacy and continuity (Boiral et al., 2020). When a company performs actions that generate a positive impact within the ESG framework it can generate value for its business, either by positively affecting its image before stakeholders or by increasing its market value, and companies with good impacts in this context are better prepared to deal with risks and challenges required by the market (Wong et al., 2021). However, it is worth noting that, on the contrary, negative actions in these areas can generate risks, adversely affecting the corporation. This adverse influence can be called ESG controversial, which is defined as negative actions regarding the environmental, social and governance spheres that put a company under the spotlight of the media and, as a consequence, increase the attention of investors. These actions raise doubts about the future prospects of the company, posing a risk to its reputation and a potential impact on the value of the company (Aouadi & Marsat, 2018; Cai et al., 2012; Carroll, 1979; Klein & Dawar, 2004). In this way, effective management of the controversial ESG becomes crucial to mitigate risks, preserve the company's reputation and value in the market (Fauser & Utz, 2021).

In this context, countries such as Brazil, Russia, India, China and South Africa (components of BRICS) still lack economic development, given the number of problems linked to sustainability issues, thus, some indices in society are more sensitive and difficult to standardize, i.e., are subject to social taboos, frequent political pressures and are more likely to cause social and environmental damage (Garcia et al., 2017). With this, one notices an emphasis on economic and social development that can potentiate the damage of the controversial ESG. Therefore, such a focus on sustainable issues has not been observed as they should, aiming at increasing the importance of directions to the sustainable environment (Morel et al., 2015; Rovetta et al., 2023).

According to Wong et al., (2021), the increase in the number of companies that are being assessed by ESG-rated entities such as Bloomberg ESG Data Services and Morgan Stanley Capital International is notable. This highlights the importance of these ratings for investors seeking to steer their investments. In addition, companies are giving preference to a sustainable approach to attracting NIS-designated investments, which represent "socially sustainable investments". For investors, this designation refers to companies with greater capacity to face
economic, social and environmental challenges, which therefore tends to result in higher profits (Fernandes & Linhares, 2017).

In this sense, the growing concern with ESG issues is not only important for the environment and society at large, but can also be a relevant factor for a company's long-term financial success. Thus, companies that incorporate ESG considerations into their business strategy become stronger to address future challenges and maximize value creation opportunities (Souza et al., 2022).

### 2.2 ESG controversial and market value

In recent years, the market has changed its operations and its guidelines because of issues such as sustainability. This trend shows how ESG influences business decisions (Aboud & Diab, 2018). These practices are supported by important organizations such as the Principles for Responsible Investment (PRI), the United Nations (UN) and the World Business Council for Sustainable Development (WBCSD). This idea has become the new way of looking at business, according to which companies need not only to sustain their financial soundness but also their social and environmental impacts for wider stakeholders such as community, employees, customers, investors, consumers, suppliers and regulators. The perspective on organizational value has gained ground beyond the domain of financial and accounting statements (Nizam et al., 2019).

ESG practices stand out because they are associated with stakeholder-driven business and have low cost of capital and better resilience against sustainability-related risks (Dhaliwal et al., 2014). Disclosure of ESG-related reports assists investors in assessing companies' risks and growth prospects. Companies that release these reports face fewer financial constraints and have lower cost of capital, as well as being better evaluated in the market (Chauhan & Kumar, 2018). In addition, the disclosure of this data contains a variety of information, such as expenses related to environmental and social protection, donations to charities and employee welfare, which are not reported in the standardized financial statements but help to assess the value of the company (Chauhan & Kumar, 2018; Dhaliwal et al., 2014).

In emerging countries such as Brazil, it is possible to note that there is a growing interest in the theme of ESG, through the creation of sustainability indicators by the stock exchange, such as the Efficient Carbon Index (ICO2) and the Business Sustainability Index (ISE). ICO2 is an index that reflects a portfolio of stocks of Brazilian companies selected on the basis of their carbon efficiency. This index has the purpose of being an inducing instrument of the discussions on climate change in Brazil, being created in 2010. On the other hand, the ISE is an indicator of the average performance of the quotes of the companies selected for their recognized commitment to corporate sustainability. Created in 2005, ISE is the fourth sustainability index in the world. These factors demonstrate a vision for the sustainability of the capital market in the country (Cunha et al., 2021).

The past decade has shown that ESG-based and sustainable investments are becoming more attractive as investors see their investments not only as a tool to increase their own individual wealth, but also as a means to create a more sustainable future. In light of these reflections, it becomes evident that investors have a direct influence on how sustainability is being integrated into a company (De Winne & Petkeviuciute, 2022). Aouadi and Marsat's (2018) studies seek to analyze the negative relationship of the controversial ESG with the market value of companies, increasing the company's risks and consequently affecting the company's ability to seek financing in the market. The statistical significance of the relationship between ESG, whether controversial or not, and market value support the idea that the market plays an important role in motivating companies to adopt sustainable practices. Your sustainability efforts can enable you to manage resources more effectively. In addition, they enable companies...
to run their business effectively, providing solutions to the environmental, social and governance problems faced by society (Macedo et al., 2022). In the light of the above, this study raises the following as its first hypothesis:

**H_1:** The disputed ESG score is negatively associated with the market value of companies.

### 2.3 Controversial ESG and Funding Restriction

There is an increase in investors' concern about sustainability and social responsibility, and as a result, companies with a higher level of awareness about ESG are more likely to gain a good reputation in the capital market (Fombrun & Shanley, 1990), and to gain the confidence of investors and financial institutions by reducing transactional uncertainties and credit risk (Zak & Knack, 2001). Through the trust established between the company and investors and creditors, the release of loans becomes easier, and this trust tends to generate greater support from investors and stakeholders (Guiso et al., 2008).

Furthermore, a history of environmental and social violations of a company tends to bring a mistrust on the part of investors, who may choose not to invest in companies that do not have well defined sustainability policies, such as, for example, the breaking up of dams in known locations in Brazil. These accidents generate personal mistrust in society and make a bad impression on the company (Ottoni & Monteiro, 2022). The disruption of the Brumadinho dam, in the municipality of Minas Gerais, had a large-scale impact, both because of its reputation and responsibility and because of the number of fatalities, employees and population. According to Jornal Nacional (2019), a few hours after the accident, the shares of Vale S.A. company showed a fall in value by more than 20%. The impacts affected the indebtedness situation of the responsible organization, and with it, the fall of the risk rating by the world's largest credit rating agencies such as Moody's and Fitch making obtaining credit by the responsible one more expensive, as well as its cost of collection (Oliveira, 2020).

It is clear that ESG practices are associated with corporate environmental performance. This environmental performance is a multi-dimensional construction that encompasses a wide and varied range of corporate behaviors in relation to its resources, commitments, processes, and outcomes. Thus, different aspects of environmental performance can be expected to be motivated and triggered differently, and may have various implications with funding constraints (Dixon-Fowler et al., 2013). A company finds itself in financial constraints when it experiences a significant increase in the cost of external financing or the increasing difficulty of accessing external sources. These factors are caused by the loss of confidence of creditors in the ability to pay a company (Martinez & Silva, 2018). One of the examples for this case, according to Li et al. (2021), is that companies experiencing corporate scandals through poor governance are more likely to face financial constraints.

Companies that do not meet ESG criteria may face financial constraints and increased funding costs, motivated by the fact that investors may demand higher interest rates or other restrictions in compensation for the risk of investing in a company with a poor track record and with negative evidence in the market when it comes to ESG (Watanabe, 2022). For example, the controversial ESG in the environmental sphere involves neglect on issues such as biodiversity and pollution, and the environmental consequences of products and/or raw materials now used. In ESG, it addresses social issues such as instability in health and safety, diversity, sub-human working conditions, child labor, and problems with customers regarding product quality. Controversies on corporate governance are worrying when related to executive board remuneration, non-transparent and aggressive accounting issues or insider information from internal negotiations (Aouadi & Marsat, 2018). The lack of corporate commitment affects trust between companies and creditors, which can create difficulties in the financial relations
between the parties (Guiso et al., 2008). With this in mind, this study raises the second hypothesis that:

**H₂:** The controversial ESG score¹ is positively associated with the restriction of corporate funding.

### 3 METHODOLOGY

The initial sample of the survey brought together 403 BRICS companies listed on the stock exchanges of their respective countries, of which 75 were Brazilian, 34 were Russian, 100 were Indian, 84 were Chinese and 110 were South African companies. The use of these companies is justified in order to obtain a general understanding of the scenario between the companies that make up the BRICS economic bloc. The initial sample consisted of 2,821 company-year observations considering the period between 2017 and 2022. After disregarding invalid or missing values in the control variables and any of the metrics proposed in the study, the final sample obtained contains 2,702 company-year observations from 2017 to 2022. To mitigate bias in estimating the coefficients of the proposed model through the influence of extreme values, the variables were winsorized at 1% on both tails.

<table>
<thead>
<tr>
<th>Table 1- Sample Construction</th>
<th>Obs. Excluded</th>
<th>Obs. Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data collected</td>
<td>0</td>
<td>2821</td>
</tr>
<tr>
<td>Excluded remarks without information</td>
<td>119</td>
<td>2702</td>
</tr>
<tr>
<td>Final sample</td>
<td></td>
<td>2702</td>
</tr>
</tbody>
</table>

Available company data was collected using the Eikon Refinitiv database. Subsequently, the R Studio software was used for data modeling. The hypotheses were verified by descriptive statistics and regression models with data in the panel. Dashboard data models can be addressed in three main ways: Pooled Ordinary Least Square (POLS), fixed effects, and random effects. The model chosen for this analysis was the POLS which, according to Fávero (2021), is characterized by a regression in its most conventional form. This model assumes that all elements in the sample have identical behavior and does not consider the time effect and the individual effect of each unit.

The descriptive statistic aims to verify the central values and the dispersions of the studied variables. While regression with panel data aims to perform the analysis of a group of variables in a time interval, the panel data allows to identify and measure effects that will not be detectable in exclusively sectional or temporal studies, as well as build and test complex behavioral models (Marques, 2000).

The hypotheses H₁ (the score of ESG controversial is negatively associated with the market value of the companies) and H₂ (the ESG controversial score is positively associated with the restriction of financing of the companies) are verified by means of Equations (1) and (2), respectively. The description of the variables is presented in Table 2.

\[
QTOB_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 ESG_{it} + \beta_3 ROA_{it} + \beta_4 CMPC_{it} + \beta_5 \ln(\text{AT})_{it} + \epsilon_{it} \quad (1)
\]

\[
KZ_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 ESG_{it} + \beta_3 ROA_{it} + \beta_4 CMPC_{it} + \beta_5 \ln(\text{AT})_{it} + \epsilon_{it} \quad (2)
\]

Where:

\[i = \text{enterprise}; \ t = \text{time}; \ \epsilon_{it} = \text{waste}\]
Tobin's Q (QTOB), see Table 2, is defined as the proportion between the market value and its cost of replenishing assets, such as equipment, machinery, and other assets related to the administration and production process. When the QTOB is less than 1, that is, if an asset is worth less than its replacement cost, the company tends not to invest in new assets of the same type. However, companies tend to invest when asset value is greater than their replacement cost, i.e., when QTOB is greater than 1 (Stewart, 1998; Pacheco, 2005).

In relation to the Kanzitz Index (KZ), see Table 2, it is a variable that allows one to predict the chances of a company going bankrupt, taking into account the general, dry and current liquidity indices, the degree of indebtedness and the return on assets. For this reason, the index started to be used as a tool for analysis by financial institutions in activities such as credit opening (Costa et al., 2015).

Table 2 - Variable description

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Acronym</th>
<th>Returns TRUE on success or FALSE on failure.</th>
<th>Formula</th>
<th>Components</th>
<th>Ref</th>
</tr>
</thead>
<tbody>
<tr>
<td>QTOB</td>
<td>Tobin Q</td>
<td>QTOB = (VM + DT) / AT</td>
<td>VM = Market value; DT = Total debt for short and long term; AT = Total assets.</td>
<td>(b)</td>
<td></td>
</tr>
<tr>
<td>KZ</td>
<td>Kanitz Index</td>
<td>(0.05 * ROE) + (1.65 * LG) + (3.55 * LS) - ((1.06 * LC) + (0.33 * GE))</td>
<td>ROE = Return on Equity; LG = General liquidity; LS = Dry liquidity; LC = Current liquidity; GE = Degree of indebtedness.</td>
<td>(b)</td>
<td></td>
</tr>
</tbody>
</table>

| Independent variables | Acronym | Environmental, social and governance controversial | ESGc = 2*ESG combined - ESG | Combined ESG = end value calculated by platforms considering ESG and ESG controversial ESG = weighted average of 3-dimensional scores, being: environmental (33.3%), social (33.3%) and governance (33.3%). Scores range from 1 to 100. | (c)  |

<table>
<thead>
<tr>
<th>Control Variables</th>
<th>Acronym</th>
<th>Environmental, social and governance disclosure score</th>
<th>ESG = weighted average of 3-dimensional scores, being: environmental (33.3%), social (33.3%) and governance (33.3%). Scores range from 1 to 100.</th>
<th>(d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEOS</td>
<td>Return on asset</td>
<td>ROA = LL/AT</td>
<td>LL = Net Profit; AT = Total assets.</td>
<td>(e)</td>
</tr>
<tr>
<td>WACC</td>
<td>Weighted average cost of capital</td>
<td>WACC = KE (ROE/DT + ROE) + KD (DT/DT + ROE)</td>
<td>KE = cost of internal source capital; KD = cost of capital from external sources; ROE = net worth of the undertaking; DT = total debt; IR = Income Tax.</td>
<td>(f)</td>
</tr>
<tr>
<td>LnAT</td>
<td>Neperian logarithm of total asset</td>
<td>LnAT = Neperian logarithm of the total asset.</td>
<td>(g)</td>
<td></td>
</tr>
</tbody>
</table>

Notes. References:
(a) Aouadi and Marsat (2018); Fatemi et al. (2018); Mohammade and Wasiuzzaman (2021); Wong et al.
(b) Costa et al. (2015).
(c) Aristizabal and Rocha (2023).
(d) Eliwa et al. (2019); Gillan et al. (2021); Wong et al. (2021).
(e) Eliwa et al. (2019); Mohammade and Wasiuzzaman (2021); Wong et al. (2021).
(f) Kling et al. (2021); Wong et al. (2021).
(g) Wong et al. (2021).
Table 2 presents a description of all the variables analyzed in this study, highlighting their meanings and corresponding calculation methods. In the scope of the dependent variables, QTOB and KZ will be used, while the independent variable under analysis will be ESGc. In addition, ESG, ROA, WACC and LnAT will be incorporated as control variables. The expected results are presented in Table 3 below:

Table 3- Expected results

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Returns TRUE on success or FALSE on failure.</th>
<th>Expected signal</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>The controversial ESG score is negatively associated with the market value of companies.</td>
<td>-</td>
<td>Aouadi and Marsat (2018)</td>
</tr>
<tr>
<td>H2</td>
<td>The controversial ESG score is positively linked to the restriction of corporate funding</td>
<td>+</td>
<td>Galletta et al. (2022)</td>
</tr>
</tbody>
</table>

In this study, it is expected that $\beta_1$ Equation (1) will be negative, which would confirm hypothesis 1 (H1). This indicates that the higher the company’s controversial ESG score, the lower its market value will be. And for hypothesis H2, it is expected that $\beta_1$ Equation (2) will be positive, indicating that the higher the score ESG controversial company, the greater the funding constraint of it.

4 RESULTS ANALYSIS

Table 4 presents the result of the descriptive statistics of the variables of the analyzed model. For the ESGc variable, it is noted that companies have an average level of 49.05, where the minimum is 0.85 and the maximum is 92.33. The ESG variable has an average of 53.29. According to Macedo et al. (2022), an ESG score above 70 indicates a commitment of the company to the adoption of sustainable policies, already a score below 50 associates the company with negative impacts on the environment and society in general. For QTOB, an average value of 0.9 was obtained, so according to Klock and Thies (1995), companies with Tobin Q equal to 1 means that the market value and the cost of replenishment of assets are identical, so that the market value of the company will be equal to the expense it will have for the internal maintenance of its non-circulating assets, while companies with Tobin Q greater than 1 means that the market value is higher than the replacement value of assets, so that investments are encouraged and companies with Tobin Q less than 1 denote a market value lower than the replacement value of assets, therefore, investing in this company is not recommended. When it comes to the variable KZ, an average perception of 2.9 is observed, which means that the companies present a direction of solvency in the established data. The ROA and IVD had average values of 0.03 and 0.72, respectively. Finally, according to Soutes and Schvirck (2006), for this average value of the ROA, it was concluded that the assets of an organization have low productivity.

Table 4 - Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Min.</th>
<th>Q1</th>
<th>Medium</th>
<th>Median</th>
<th>Q3</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESGc</td>
<td>2,702</td>
<td>0,85</td>
<td>35,16</td>
<td>47,83</td>
<td>49,05</td>
<td>61,29</td>
<td>92,33</td>
</tr>
<tr>
<td>ESG</td>
<td>2,702</td>
<td>3,20</td>
<td>39,70</td>
<td>51,91</td>
<td>53,29</td>
<td>64,80</td>
<td>93,00</td>
</tr>
<tr>
<td>QTOB</td>
<td>2,702</td>
<td>0,03</td>
<td>0,55</td>
<td>1,44</td>
<td>0,90</td>
<td>1,61</td>
<td>6,26</td>
</tr>
<tr>
<td>KZ</td>
<td>2,702</td>
<td>-0,26</td>
<td>1,24</td>
<td>3,23</td>
<td>2,90</td>
<td>4,26</td>
<td>17,21</td>
</tr>
<tr>
<td>CEOS</td>
<td>2,702</td>
<td>-0,15</td>
<td>0,01</td>
<td>0,05</td>
<td>0,04</td>
<td>0,08</td>
<td>0,31</td>
</tr>
<tr>
<td>DIV</td>
<td>2,702</td>
<td>0,00</td>
<td>0,28</td>
<td>1,40</td>
<td>1,40</td>
<td>1,54</td>
<td>14,31</td>
</tr>
<tr>
<td>WACC</td>
<td>2,702</td>
<td>0,00</td>
<td>0,05</td>
<td>0,05</td>
<td>0,05</td>
<td>0,06</td>
<td>0,10</td>
</tr>
<tr>
<td>LnAT</td>
<td>2,702</td>
<td>8,40</td>
<td>9,99</td>
<td>10,59</td>
<td>10,52</td>
<td>11,09</td>
<td>13,49</td>
</tr>
</tbody>
</table>
To test the hypotheses of this research, the model exposed in Equation (1) and Equation (2) was estimated using a model for panel data estimated by the POLS model. The result is presented by Table 5 and 6 that address hypotheses 1 and 2, respectively.

<table>
<thead>
<tr>
<th>Table 5 - POLS - QTOB Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>QTOB</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>ESGc</td>
</tr>
<tr>
<td>ESG</td>
</tr>
<tr>
<td>CEOs</td>
</tr>
<tr>
<td>DIV</td>
</tr>
<tr>
<td>WACC</td>
</tr>
<tr>
<td>LnAT</td>
</tr>
</tbody>
</table>

Note: *, **, and *** indicate significance levels of 10%, 5%, and 1% respectively.

According to the POLS test result presented in Table 5, the coefficient of the ESGc variable is negative and was statistically significant (p-value < 10%). Therefore, as expected, evidence was obtained that the score of ESG controversial is negatively associated with the market value of the companies, confirming hypothesis 1 (H1). This result corroborates the studies of Aouadi and Marsat (2018), Aboud and Diab (2018) and Wong et al. (2021), indicating that the controversial ESG has a destructive potential to the market value of companies. In addition, investors value companies that prioritize social responsibility by adding market value, and with this a risk-return balance is evidenced. Companies with low examples of controversial ESG are perceived as less risky because they are seen as more sustainable in the long run (Derwall, 2007; Kang & Kim, 2014).

As for the control variables, Table 5 shows that there is a positive relationship between the return on assets (ROA) and Tobin's Q (QTOB), corroborating the results obtained in the studies of Wong et al. (2021), Mohammade and Wasiuzzaman (2021) and Aouadi and Diab (2018). In relation to the total assets of a company, measured in this study by its Neperian logarithm (LnAT), a negative relationship with Q of Tobin (QTOB) is remarkable, as found by Fatemi et al. (2018) and Wong et al. (2021).

Table 6 presents the results of the analysis of hypothesis 2 (H2), it being possible to verify that the coefficient of the variable ESGc is negative and was statistically significant to 5% (p-value < 5%).

<table>
<thead>
<tr>
<th>Table 6 - POLS Model - KZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>KZ</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>ESGc</td>
</tr>
<tr>
<td>ESG</td>
</tr>
<tr>
<td>CEOs</td>
</tr>
<tr>
<td>DIV</td>
</tr>
<tr>
<td>WACC</td>
</tr>
<tr>
<td>LnAT</td>
</tr>
</tbody>
</table>

Note. *, **, and *** indicate significance levels of 10%, 5%, and 1% respectively.

However, contrary to expectations, the controversial ESG score is negatively associated with the restriction of funding of companies, not confirming hypothesis 2 (H2). The explanation of this result is that in contrast to developed markets, investors in emerging markets, such as the BRICS example, have been hesitant to incorporate sustainability into their investment process, where economic challenges are substantial. The lack of financial resources in these regions leads companies, investors and governments to prioritize short-term investments to meet immediate needs, relegating sustainable initiatives to the background (Odell & Ali, 2016;...
Linhares, 2017). With this, Lamounier and Nogueira (2007) show that in emerging countries, the presence of political and economic instability creates a challenging environment, marked by an unstable environment and uncertainty, making economic analyses difficult, in contrast to what usually happens in developed countries.

5 CONCLUSION

ESG practices, especially in Brazil and the BRICS countries, are gaining increasing prominence. There is a rising interest on the part of investors in companies committed to environmental, social and governance issues, while there is an aversion towards companies engaged in negative practices in these areas, known as controversial ESG. Among the advantages for a company in adopting these positive practices is the improvement in the image before the stakeholders, increase the confidence of investors, improvement in financial performance and become an attraction for obtaining and maintaining talent. Despite these benefits, such processes still have significant spaces for development in emerging countries, which raises critical questions about their validation and effectiveness in companies.

Thus, the aim of this study was to analyze the relationship between the ESG at issue and the market value and financing restrictions of companies that make up BRICS. To do so, a sample was analyzed with 403 BRICS companies listed on the stock exchanges of their respective countries. The period analyzed was from 2017 to 2022, from the Eikon Refinitiv database. The hypotheses were verified by descriptive statistics and regression models with data in the panel.

Through the results, it is possible to obtain confirmation of the hypothesis that the score of controversial ESG is negatively associated with the market value of the companies (H1). It is observed from this result that companies are encouraged to adopt ESG practices, avoiding getting involved in controversies on the subject. However, contrary to what was expected, the results point to the rejection of the hypothesis that the score of controversial ESG is positively associated with the restriction of financing of companies (H2). The explanation for this outcome is that, in contrast to developed markets, investors in emerging markets, exemplified by the BRICS, have been hesitant to incorporate sustainability into their investment analysis processes. In this way, political and economic instability in emerging countries not only creates an environment prone to uncertainties, but also makes it more challenging to conduct accurate and reliable economic analyses. Dealing with these challenges requires a cautious approach and an in-depth understanding of the local context, so that companies and investors can effectively navigate this dynamic landscape and thus mitigate the risks associated with these unstable environments, countering what usually happens in developed countries.

In the light of the above, the results of this study have practical and academic implications. The motivations for the adoption of sustainable practices by companies have as a primary factor the market, this is noted by the high statistical significance among the controversial ESG, market value and financial constraints of companies. In addition, the adoption of environmental practices such as renewable energy use and waste reduction, social practices such as promoting inclusive working environments, and governance practices such as tax transparency and anti-corruption contribute to the sustainable development of future generations.

Another practical implication of this research is related to the ongoing importance of companies adopting as a priority the analysis of the long-term effects of the investment policy linked to environmental, social and governance practices. In addition, it is suggested that corporate and public policy makers enhance regulatory structures, both at the corporate and governmental levels, in incorporating ESG into investment activities, aiming at creating long-term value.
A limitation of this study was the lack of available data, mainly ESG variables, from companies present in the BRICS countries, especially in Brazil, which made it impossible to analyze individually the impact of the controversial ESG on companies in each of the countries analyzed.

For future studies, it is suggested: a) analysis of the impact of the controversial ESG on the market value of developed countries; b) analysis of each of the three scores distinct from ESG - environmental, social and governance as independent variables relating their impacts on the market value of companies; c) comparison of the financial performance of companies adopting ESG practices between emerging and developed countries.

REFERENCES


Lo, K. Y., & Kwan, C. L. (2017). The effect of environmental, social, governance and sustainability initiatives on stock value—Examining market response to initiatives undertaken by listed companies. Corporate social responsibility and environmental management, 24(6), 606-619.


